REMARKS

In the non-final Office Action, the Examiner rejects claims 1-4, 6, 8, 9, 11, 12, 14, 18, 21, and 24 under 35 U.S.C. § 103(a) as unpatentable over HASKIN et al. (U.S. Patent No. 6,813,242) in view of MCALLISTER et al. (U.S. Patent No. 6,697,329), and rejects claims 10, 13, 15-17, and 19-21 under 35 U.S.C. § 103(a) as unpatentable over HASKIN et al. in view of MCALLISTER et al., and further in view of REXFORD (U.S. Patent No. 6,633,544). Applicants respectfully traverse these rejections. Claims 1-4, 6, 8-21, and 24 remain pending.

Claims 1-4, 6, 8, 9, 11, 12, 14, 18, 21, and 24 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over HASKIN et al. in view of MCALLISTER et al. Applicants respectfully traverse this rejection.

Claim 1 is directed to a network for forwarding packets from a source device to a destination device, where the network includes a plurality of network elements including a plurality of nodes and connecting links. The plurality of nodes includes at least one alternative-route-enabled node and at least one non-alternative-route-enabled node. The at least one non-alternative-route-enabled node comprises a storage space to store an initial route from the source device to the destination device; a mechanism to detect failure in a downstream network element in the initial route; and a forwarder to automatically forward a failure message upstream along the initial route to an alternative-route-enabled node, where the failure message causes the alternative-route-enabled node to begin forwarding packets on an alternative route. HASKIN et al. and MCALLISTER et al. do not disclose or suggest this combination of features.

For example, HASKIN et al. and MCALLISTER et al. do not disclose or suggest a plurality of nodes including at least one alternative-route-enabled node and at least one non-alternative-route-enabled node. The Examiner relies on element 1 in Fig. 1 of HASKIN et al. as allegedly corresponding to at least one alternative-route-enabled node and on element 3 or 5 in Fig. 1 of HASKIN et al. as allegedly corresponding to at least one non-alternative-route-enabled node (Office Action, pg. 2). Applicants submit that the Examiner has misinterpreted the disclosure of HASKIN et al.

Element 1 in Fig. 1 of HASKIN et al. corresponds to a switch. As clearly illustrated in Fig. 1, switch 1 has the ability to transfer data over a primary path 13 and an alternative path 12. Thus, switch 1 is an alternative-route-enabled node. Elements 3 and 5 in Fig. 1 of HASKIN et al. also correspond to switches. As clearly illustrated in Fig. 1, switches 3 and 5 have the ability to transfer data over a primary path 35 and 57, respectively, and an alternative path 34 and 56, respectively. Thus, switches 3 and 5 are alternative-route-enabled nodes. The Examiner does not explain why one skilled in the art would reasonably construe switches 3 and 5 to be non-alternative-route-enabled nodes when HASKIN et al. specifically discloses that alternative routes are provided for switches 3 and 5 (see, for example, col. 3, lines 4-9).

Even assuming, for the sake of argument, that one skilled in the art could reasonably construe HASKIN et al.'s switches 3 and 5 to be non-alternative-route-enabled nodes (a point that Applicants do not concede), Applicants submit that HASKIN et al. does not disclose or suggest that switch 3 or 5 includes a storage space to store an initial route from a source device to a destination device, as recited in claim 1. The

Examiner appears to admit that HASKIN et al. does not disclose this feature and relies on element 46 in MCALLISTER et al. as allegedly corresponding to an alternative-route-enabled node, on element 32 in MCALLISTER et al. as allegedly corresponding to a non-alternative-route-enabled node, and on Fig. 5 and col. 13, lines 35-67, of MCALLISTER et al. for allegedly disclosing a non-alternative-route-enabled node that includes a storage space to store an initial route from a source device to a destination device (Office Action, pp. 3-4). Applicants respectfully disagree with the Examiner's interpretation of MCALLISTER et al.

Element 46 in MCALLISTER et al. corresponds to a network management system (NMS). MCALLISTER et al. in no way discloses or suggests that NMS 46 is an alternative-route-enabled node. Instead, MCALLISTER et al. discloses that NMS 46 provides a human operator with the ability to manually provision an operator directed route (ODR) soft permanent virtual circuit (SPVC) (col. 7, lines 11-14). The Examiner has not pointed to any section of MCALLISTER et al. that discloses or suggests that NMS 46 is an alternative-route-enabled node.

Element 32 in MCALLISTER et al. corresponds to network nodes. MCALLISTER et al. in no way discloses or suggests that network nodes 32 are non-alternative-route-enabled nodes. For example, as clearly depicted in Fig. 2A of MCALLISTER et al., network node 32A includes 3 separate output paths. Clearly, network node 32A is an alternative-route-enabled node. The Examiner has not pointed to any section of MCALLISTER et al. that discloses or suggests that network nodes 32A are non-alternative-route-enabled nodes.

Since the Examiner has not pointed to any section of MCALLISTER et al. that discloses a non-alternative-route-enabled node, MCALLISTER et al. cannot reasonably be relied on to disclose a non-alternative-route-enabled node that includes a storage space to store an initial route from a source device to a destination device, as recited in claim 1.

Fig. 5 of MCALLISTER et al. depicts a relational database structure 52 that is used by a network node 32 to keep track of ODR SPVCs managed by that network node 32 (col. 13, lines 35-37). Since, as set forth above, network nodes 32 are alternative-route-enabled nodes, this relational database structure 52 cannot reasonably be relied on as corresponding to the storage space recited in Applicants' claim 1 that is included in a non-alternative-route-enabled node. Moreover, MCALLISTER et al. does not disclose or suggest a non-alternative-route-enabled node that manages an ODR SPVC.

At col. 13, lines 35-67, MCALLISTER et al. discloses:

> FIG. 5 illustrates a preferred relational database structure 52 used by a given network node 32 to keep track of ODR SPVCs managed thereby. The node database structure includes the following tables: (a) an indexed table 54 of P-NNI network node identifiers; (b) an indexed table 56 of "compressed" ODR SPVC DTLs, as explained in greater detail below, and an ODR SPVC list 58, part 59 of which is stored in random access memory. The ODR SPVC database 52 includes one record for each ODR SPVC which has originated from or is managed by the node. Each ODR SPVC record includes:
>
> (a) an "operatorDrtRtng" field 60 which specifies whether the corresponding ODR SPVC is a conventional SPVC or an ODR SPVC;
>
> (b) a "prmNtwrkPathIndex" field 62 which points to an entry in the compressed DTL table that represents the primary path of an ODR SPVC;
>
> (c) a "altNtwrkPathIndex" field 64 which points to the alternate path entry in the compressed DTL table for the ODR SPVC; and

> (d) a "re-route scheme" field 66 which stores the re-route scheme for the ODR SPVC.
>
> In this manner, the source node of an SPVC can determine whether the SPVC is an ODR SPVC, and, if so, determine the attributes associated with the ODR SPVC in order to take appropriate action in the event of link failure.
>
> The compressed DTL table 56 has a "compressed DTL" field 68 for storing network paths in a compressed format. A compressed network path is illustrated in greater detail at reference no. 68' and comprises a sequence of link identifiers (i.e. P-NNIPortIdfield 70), and pointers 72 to the node table 54. In the preferred embodiment, P-NNIPortId=0 signifies that no link has been specified by the operator, whereby.

This section of MCALLISTER et al. discloses, as set forth above, a relational database structure 52 that is used by a network node 32 to keep track of ODR SPVCs managed by that network node 32. This section of MCALLISTER et al. in no way discloses or suggests that the node that keeps track of an ODR SPVC is a non-alternative-route-enabled node. Therefore, this section of MCALLISTER et al. cannot disclose or suggest a non-alternative-route-enabled node that includes a storage space to store an initial route from a source device to a destination device, as recited in claim 1. Moreover, MCALLISTER et al. does not disclose or suggest that relational database structure 52 stores an initial route from a source device to a destination device, as recited in claim 1. Instead, MCALLISTER et al. specifically discloses that relational database structure 52 stores an indexed table 54 of P-NNI network node identifiers, and an indexed table 56 of compressed ODR SPVC designated transit lists (DTLs) and an ODR SPVC list 58. MCALLISTER et al. does not disclose or suggest that relational database structure 52 stores an initial route from a source device to a destination device, as recited in claim 1.

Even assuming, for the sake of argument, that the disclosure of MCALLISTER et al. can reasonably be construed to disclose a non-alternative-enabled node that includes a storage space to store an initial route from a source device to a destination device, as recited in claim 1, Applicants submit that one skilled in the art would not have been motivated to incorporate this alleged teaching of MCALLISTER et al. into the HASKIN et al. system, absent impermissible hindsight.

With respect to motivation, the Examiner alleges "it would have been obvious ... to modify the system of Haskin with the teaching of McAllister to provide a network for forwarding packets from a source device to a destination device in order to reduce the probability of packet loss in a network" (Office Action, pg. 4). Applicants submit that the Examiner's motivation is merely a conclusory statement regarding an alleged benefit of the combination. Such motivation statements have consistently been found to be insufficient for establishing a *prima facie* case of obviousness. Moreover, the Examiner does not explain why incorporating the ability to store an initial route in a non-alternative-route-enabled node would enable HASKIN et al.'s system to reduce the probability of packet loss. It is clear that the Examiner's motivation to combine these documents is based on impermissible hindsight.

For at least the foregoing reasons, Applicants submit that claim 1 is patentable over HASKIN et al. and MCALLISTER et al., whether taken alone or in any reasonable combination.

Claims 2-4 and 6 depend from claim 1. Therefore, these claims are patentable over HASKIN et al. and MCALLISTER et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 1.

Independent claim 8 recites features similar to, yet of different scope than, those described above with respect to claim 1. Applicants submit that claim 8 is patentable over HASKIN et al. and MCALLISTER et al., whether taken alone or in any reasonable combination, for at least reasons similar to those given above with respect to claim 1.

Claims 9, 11, and 12 depend from claim 8. Therefore, these claims are patentable over HASKIN et al. and MCALLISTER et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 8. Moreover, these claims recite additional features not disclosed or suggested by HASKIN et al. and MCALLISTER et al.

For example, claim 9 recites that the determining an initial route includes determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route. HASKIN et al. and MCALLISTER et al., whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, HASKIN et al. and MCALLISTER et al. do not disclose or suggest refining a determined short path according to administrative constraints. The Examiner appears to admit that HASKIN et al. does not disclose this feature and relies on col. 8, lines 10-18, of MCALLISTER et al. for allegedly disclosing the above feature of claim 9

(Office Action, pg. 13). Applicants respectfully disagree with the Examiner's interpretation of MCALLISTER et al.

At col. 8, lines 10-18, MCALLISTER et al. discloses:

> or scheme through the user interface means, thereby indicating how strictly an ODR SPVC is restricted to routes along the nodes and links provisioned by the operator when circumstances dictate the ODR SPVC must be re-routed. The preferred re-routing schemes, which are discussed in greater detail below, include:
>
> (a) primary path;
>
> (b) primary path-alternate path;
>
> (c) primary path-any path, and

This section of MCALLISTER et al. discloses three different re-routing schemes: primary path, primary path-alternate path, and primary path-any path. This section of MCALLISTER et al. in no way discloses or suggests refining a determined short path according to administrative constraints, as recited in claim 9.

For at least these additional reasons, Applicants submit that claim 9 is patentable over HASKIN et al. and MCALLISTER et al., whether taken alone or in any reasonable combination.

Claim 11 recites that the determining an alternative route includes determining a shortest route from a node preceding the failed element to the destination device within the network, refining the route to exclude the failed element on the initial route, and establishing the alternative route for forwarding packets. HASKIN et al. and MCALLISTER et al., whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, HASKIN et al. and MCALLISTER et al. do not disclose or suggest determining a shortest route from a node preceding the failed element to the destination device in the network. The Examiner appears to admit that HASKIN et al. does not disclose this feature and relies on col. 8, lines 5-8, of MCALLISTER et al. for allegedly disclosing the above feature of claim 11 (Office Action, pg. 13). Applicants respectfully disagree with the Examiner's interpretation of MCALLISTER et al.

At col. 8, lines 5-8, MCALLISTER et al. discloses:

> the shortest path or least cost. This path is displayed, either textually or graphically, to the operator, who may then confirm or edit the path chosen by the software running on the NMS 46.

This section of MCALLISTER et al. discloses that a shortest path or least cost path can be confirmed or edited by software running on NMS 46. This section of MCALLISTER et al. in no way discloses or suggests determining a shortest route from a node preceding a failed element to the destination device in the network, as recited in claim 11.

For at least these additional reasons, Applicants submit that claim 11 is patentable over HASKIN et al. and MCALLISTER et al., whether taken alone or in any reasonable combination.

Independent claim 14 is directed to a method for forwarding packets from a source device to a destination device in a network of interconnected elements including nodes and links. The method includes determining an initial route by determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing

network traffic; determining an alternative route; forwarding packets on the initial route; detecting a failed element; and automatically forwarding packets on the alternative route without communicating with either the source or the destination. HASKIN et al. and MCALLISTER et al. do not disclose or suggest this combination of features.

For example, HASKIN et al. and MCALLISTER et al. do not disclose or suggest determining an initial route by determining a short path from the destination device to the source device within the network, refining the path according to administrative constraints, and establishing the path as the initial route, the initial route being prioritized to establish a hierarchy for preemption in routing network traffic. The Examiner does not address these features in the Office Action. Instead, the Examiner appears to have simply copied the rejection of claim 1 (see Office Action, pp. 7-8). Claim 1, however, recites different features than are recited in claim 14. For example, claim 1 does not recite the above features recited in claim 14. The Examiner has not established a *prima facie* case of obviousness with respect to claim 14. Applicants respectfully request that the Examiner specifically address the features of claim 14 or withdraw the rejection.

For at least the foregoing reasons, Applicants submit that claim 14 is patentable over HASKIN et al. and MCALLISTER et al., whether taken alone or in any reasonable combination.

Independent claim 18 is directed to a method for locally rerouting packets traveling on an established route when a node in a network of interconnected nodes fails. The method includes computing, at select intermediary nodes along the established route, an alternative route leading from the select intermediary node to the destination device of

the established route; storing, at each of the select intermediary nodes, the alternative route; determining locally that the established route has failed; and automatically forwarding packets on the alternative route. HASKIN et al. and MCALLISTER et al., whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, HASKIN et al. and MCALLISTER et al. do not disclose or suggest computing, at select intermediary nodes along the established route, an alternative route leading from the select intermediary node to the destination device of the established route and storing, at each of the select intermediary nodes, the alternative route. The Examiner does not address these features in the Office Action. Instead, the Examiner appears to have simply copied the rejection of claim 1 (see Office Action, pp. 9-10). Claim 1, however, recites different features than are recited in claim 18. For example, claim 1 does not recite the above feature recited in claim 18. The Examiner has not established a *prima facie* case of obviousness with respect to claim 18. Applicants respectfully request that the Examiner specifically address the features of claim 18 or withdraw the rejection.

For at least the foregoing reasons, Applicants submit that claim 18 is patentable over HASKIN et al. and MCALLISTER et al., whether taken alone or in any reasonable combination.

Claim 21 depends from claim 18. Therefore, Applicants submit that this claim is patentable over HASKIN et al. and MCALLISTER et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 18.

Independent claim 24 is directed to a network for forwarding packets from a source device to a destination device and including a plurality of intermediate network nodes. The plurality of intermediate network nodes includes at least one first node configured to store an initial route from the source device to the destination device and at least one alternative route from the source device to the destination device, detect a failure in a downstream network node in the initial route, and automatically forward a packet to a node on one of the at least one alternative route in response to detecting the failure; and at least one second node configured to store the initial route, detect a failure in a downstream network node in the initial route, and forward a failure message to an upstream first node in response to detecting the failure, the failure message causing the upstream first node to automatically forward a packet to a node on one of the at least one alternative route. HASKIN et al. and MCALLISTER et al., whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, HASKIN et al. and MCALLISTER et al. do not disclose or suggest at least one first node and at least one second node that store an initial route from a source device to a destination device. The Examiner appears to admit that HASKIN et al. does not disclose this feature and relies on Fig. 5 and col. 13, lines 35-67, of MCALLISTER et al. for allegedly disclosing the above feature of claim 24 (Office Action, pp. 11-12). Applicants respectfully disagree with the Examiner's interpretation of MCALLISTER et al.

As set forth above, Fig. 5 of MCALLISTER et al. depicts a relational database structure 52 that is used by a network node 32 to keep track of ODR SPVCs managed by

that network node 32 (col. 13, lines 35-37). Even assuming, for the sake of argument, that at least one of MCALLISTER et al.'s network nodes 32 could reasonably be construed as the recited at least one first node and at least one of MCALLISTER et al.'s network nodes 32 could reasonably be construed as the recited at least one second node (a point that Applicants do not concede), Applicants submit that MCALLISTER et al. does not disclose or suggest that relational database structure 52 stores an initial route from a source device to a destination device, as recited in claim 24. Instead, MCALLISTER et al. specifically discloses that relational database structure 52 stores an indexed table 54 of network node identifiers, and an indexed table 56 of compressed ODR SPVC designated transit lists (DTLs) and an ODR SPVC list 58. MCALLISTER et al. does not disclose or suggest that relational database structure 52 stores an initial route from a source device to a destination device, as recited in claim 24.

Col. 13, lines 35-67, of MCALLISTER et al. is reproduced above. This section of MCALLISTER et al. discloses a relational database structure 52 that is used by a network node 32 to keep track of ODR SPVCs managed by that network node 32. This section of MCALLISTER et al. in no way discloses or suggests that relational database structure 52 stores an initial route from a source device to a destination device, as recited in claim 24.

For at least the foregoing reasons, Applicants submit that claim 24 is patentable over HASKIN et al. and MCALLISTER et al., whether taken alone or in any reasonable combination.

Claims 10, 13, 15-17, and 19-21 stand rejected under 35 U.S.C. § 103(a) as

allegedly unpatentable over HASKIN et al. in view of MCALLISTER et al., and further in view of REXFORD. Applicants respectfully traverse this rejection.

Claims 10, 13, and 15-17 depend from claim 8. The disclosure of REXFORD does not remedy the deficiencies in the disclosures of HASKIN et al. and MCALLISTER et al. set forth above with respect to claim 8. Therefore, Applicants submit that claims 10, 13, and 15-17 are patentable over HASKIN et al., MCALLISTER et al., and REXFORD whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 8.

Claims 19-21 depend from claim 18. The disclosure of REXFORD does not remedy the deficiencies in the disclosures of HASKIN et al. and MCALLISTER et al. set forth above with respect to claim 18. Therefore, Applicants submit that claims 19-21 are patentable over HASKIN et al., MCALLISTER et al., and REXFORD, whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 18.

In view of the foregoing remarks, Applicants respectfully request the Examiner's reconsideration of this application, and the timely allowance of the pending claims.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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